THE NAVY & MARINE CORPS AVIATION SAFETY MAGAZINE

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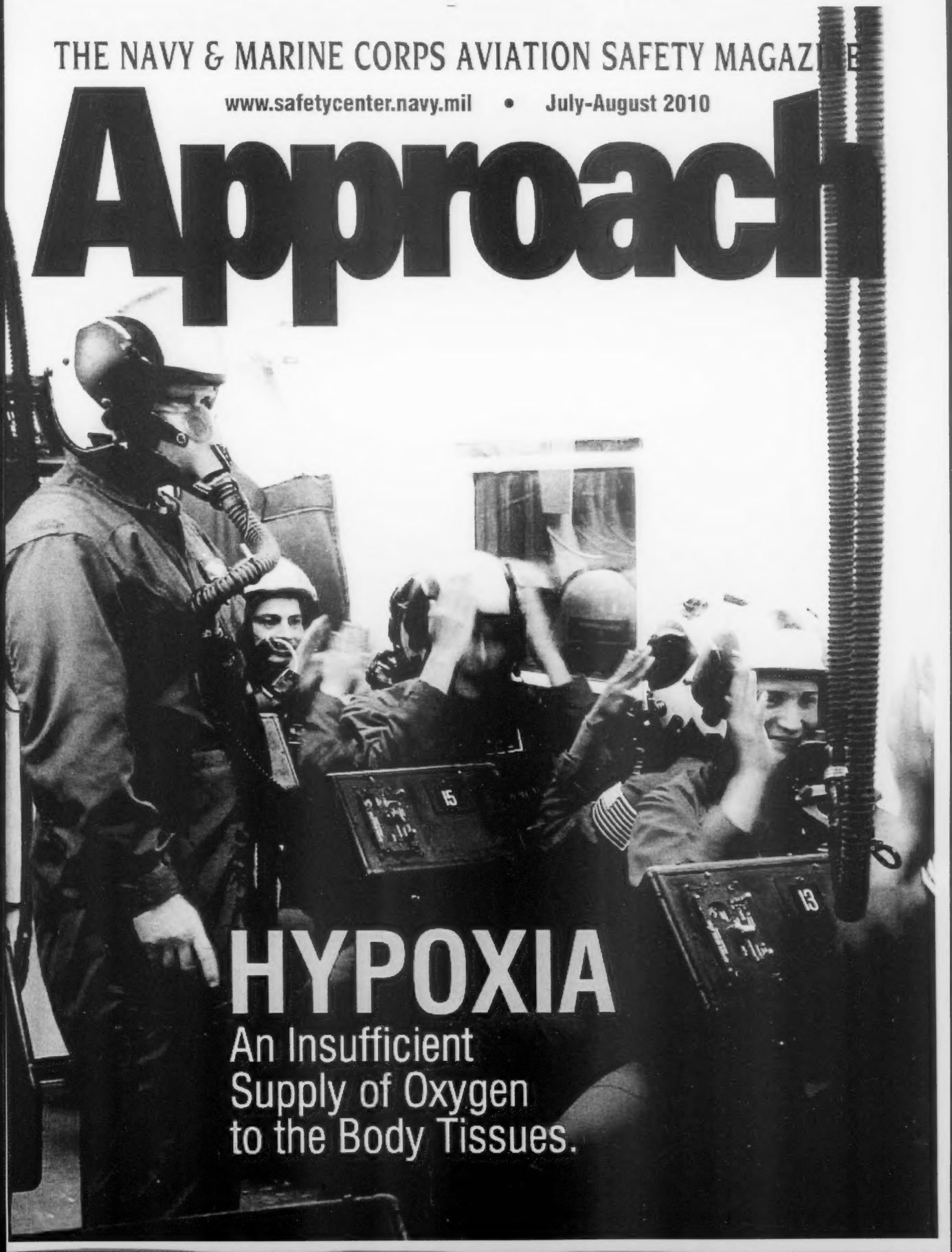
Approach



HYPOXIA

An Insufficient Supply of Oxygen to the Body Tissues.

The Navy & Marine Corps Aviation Safety Magazine
July-August 2010 Volume 55, No. 4
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Mishaps cost time and resources. They take our Sailors, Marines and civilian employees away from their units and workplaces and put them in hospitals, wheelchairs and coffins. Mishaps ruin equipment and weapons. They diminish our readiness. This magazine's goal is to help make sure that personnel can devote their time and energy to the mission. We believe there is only one way to do any task: the way that follows the rules and takes precautions against hazards. Combat is hazardous; the time to learn to do a job right is before combat starts.

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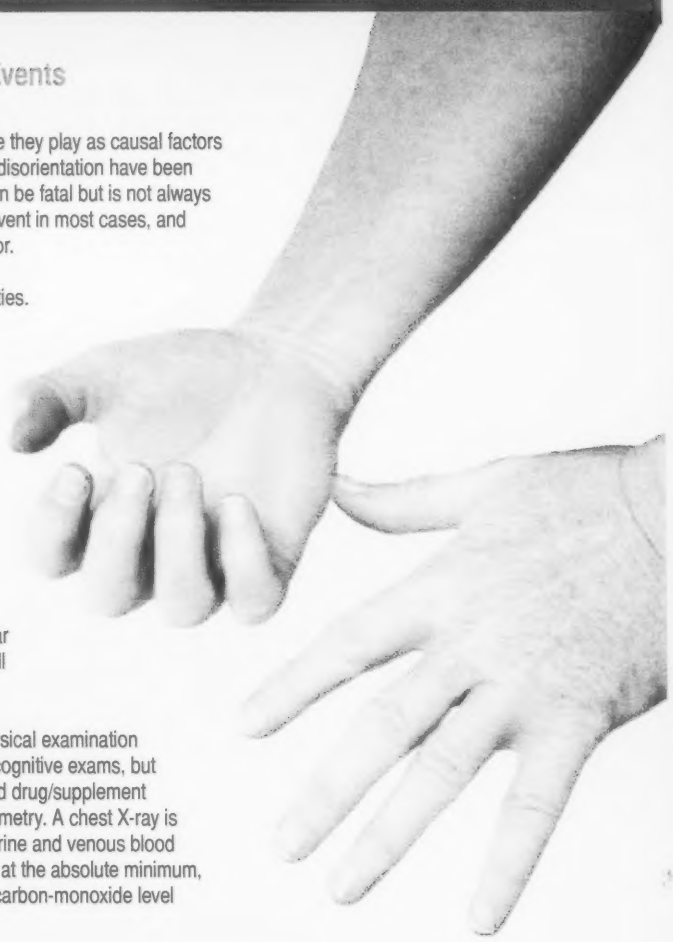
Departments

Front cover: Aircrew experience hypoxic conditions during pressure-chamber training.

The Initial Approach Fix

Medical Investigation of Suspected Hypoxic Events

We continue to emphasize aeromedical issues and the role they play as causal factors in the majority of our mishaps. While fatigue and spatial disorientation have been identified as the top two aeromedical factors, hypoxia can be fatal but is not always easily identified. Hypoxia is a self-reported physiologic event in most cases, and it's involvement in a mishap can challenge the most skilled investigator.



We do a very thorough job of investigating mishaps that involve fatalities. But, when it comes to physiologic events such as hypoxia, we sometimes drop the ball, particularly when the events don't result in a mishap or a fatality. Here are several medical considerations when investigating hypoxic events:

Encourage all aircrew to promptly report any suspected physiologic events. Events involving suspected problems such as oxygen-system contamination are time-critical, because the clinical evidence may be extremely short-lived. Make sure the involved aircraft and gear are "downed." It's easy to release the aircraft and gear if you determine further investigation isn't needed, but you may lose critical evidence if aircraft are reused before you get to them. Besides, anyone who uses the aircraft or gear may be at risk. Have engineering investigations (EIs) performed on all suspect equipment.

Flight surgeons, you must perform at least a focused history and physical examination on affected aircrew. Pay particular attention to the neurological and cognitive exams, but don't omit the cardiovascular and pulmonary systems, vital signs, and drug/supplement use history. Obtain a 12-lead electrocardiogram (ECG) and pulse oximetry. A chest X-ray is indicated if you suspect atelectasis or other lung disorders. Collect urine and venous blood samples from affected aircrew. Order a complete blood count (CBC) at the absolute minimum, but consider toxicological studies as well. Arterial blood gas (ABG), carbon-monoxide level (smokers) and acetylene tests may be indicated in some cases.

"Why acetylene?" The Naval Safety Center released a message in August 2005 when it became apparent that contamination from OBOGS units might be seen as a cause of hypoxia incidents. The following guidance was included: "A remote possibility of contamination by gases such as acetylene, carbon monoxide, and carbon dioxide can cause additional hypoxia risks not previously identified, particularly in OBOGS-equipped aircraft. To better understand these possible contamination concerns, the following additional actions are requested by Naval Safety Center in all hypoxia cases to rule out contamination as a cause factor. Submit a red top blood specimen to AFIP with a DD-1323 (toxicological examination request and report form) and in the section incident/hypoxia block mark "hypoxia episode" screen for "acetylene." AFIP toxicology lab will continue to routinely screen all blood samples for carbon monoxide."

In cases where there aren't other obvious causes for hypoxia and a contaminated OBOGS system may be at fault, consider submitting the additional labs above.

The value of reporting physiological events cannot be overstated, and it's required by NATOPS 3750.6. Increasing awareness and improving training to counter the effects of events such as hypoxia are key to overcoming them. Share your experiences, report these events, and improve your awareness of physiologic events.

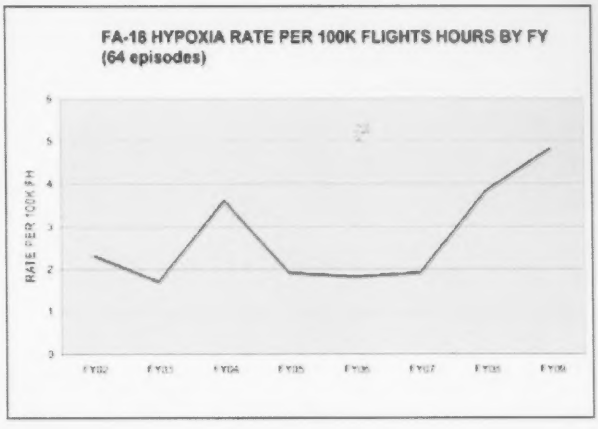
Contact the Naval Safety Center Aeromedical Division at 757 444-3520 ext. 7268 (DSN 564) for additional assistance.

Hypoxia—A Physiological Threat

HYPOXIA IS AN INSUFFICIENT SUPPLY OF OXYGEN TO THE BODY TISSUES.

BY CDR DON DELOREY

Hypoxia is a well-known physiological flight threat to aviators that continues to be an issue with the FA-18 aircraft. Between FY02 and FY09, Hornet aviators reported 64 episodes of hypoxia (about eight episodes per year). Two episodes resulted in Class A flight mishaps and two associated fatalities. The majority (77 percent) of hypoxia episodes occurred in single-seat Hornets. The overall hypoxia rate for the FA-18 during this period was about 2.7 episodes per 100,000 flight hours. The single-seat FA-18 had a rate of 3.2 episodes per 100,000 flight hours and the two-seat version exhibited a rate of 1.7 episodes per 100,000 flight hours (see graph below).



The most common cause of hypoxia in the FA-18 was the failure of the OBOGs system (29 percent). The most frequently hypoxic symptom noted by aircrew was tingling (43 percent). Other symptoms of hypoxia included lightheadedness, visual changes, cognitive impairment, headache, nausea, and cyanosis.

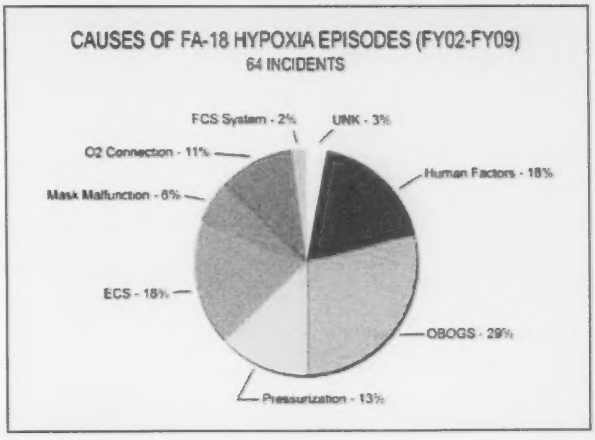
What's Your Real Altitude?

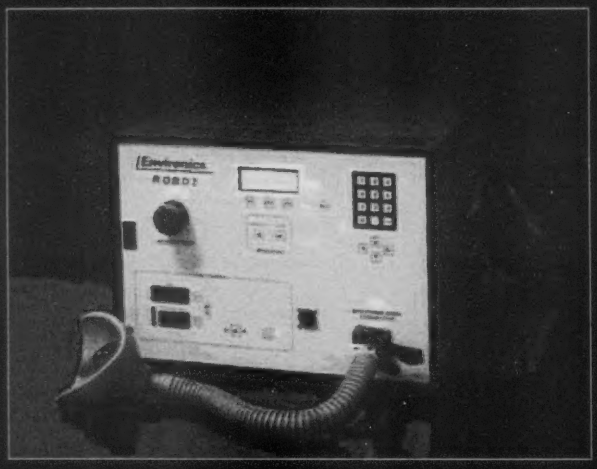
The effects of self-imposed stressors on physiologic altitude

Did you know you could impose physiologic effects that can make your body think it's at a higher altitude than sea level? Self-imposed stressors, such as smoking, dehydration, and fatigue, can cause your physiologic altitude to be much higher than you think.

Some stressors, like fatigue, are not as well-defined, but smoking and dehydration have well-known effects. Smoking a pack of cigarettes per day can raise your physiologic altitude by 3,000 to 5,000 feet. Drinking one ounce of alcohol can raise physiologic altitude by 2,000 feet. While the 12-hour drinking rule will keep you legal if you drink moderately the night before, if you drink excessively, you probably still will have alcohol in your system when you start to preflight.

So, if you smoke a pack of cigarettes a day and really drink hard the night before, you could be at a real altitude of more than 7,000 feet. If you are taking off from NAS Fallon, NV, with a field elevation of 3,934 feet, you're already over 10,000 feet while on the deck!

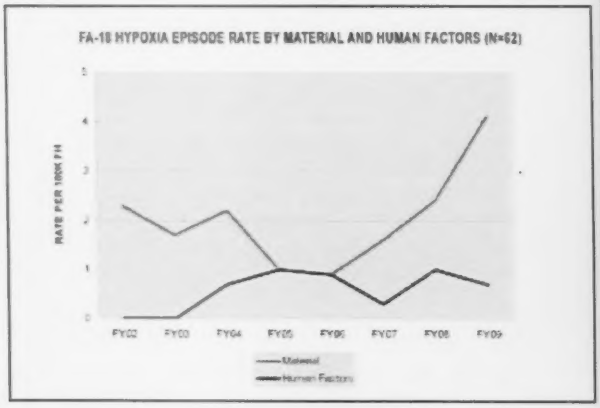




The ROBD is a portable computerized gas-blending instrument used to produce hypoxia without changes in atmospheric pressure. It is used to train TACAIR aircrew to recognize the signs and symptoms of hypoxia and to perform the appropriate emergency procedures.

Except for the two hypoxia episodes that resulted in a Class A flight mishaps, the remaining episodes (97 percent) were recognized by the aircrew, thereby preventing mishaps and reinforcing the importance of hypoxia training. Since the implementation of reduced oxygen breathing device (ROBD) hypoxia training for FA-18 aircrew in 2006, there have been no hypoxia-related FA-18 Class A flight mishaps, only hazard reports.

The data suggest that the rate of hypoxia episodes which are the result of human factors has remained fairly consistent over this period. However, it appears an increase in hypoxia episodes is the result of material failures over the last two years (see graph below).



CDR DELOREY IS THE AEROSPACE PHYSIOLOGIST AT THE NAVAL SAFETY CENTER.

U.S. Air Force photo by Airman 1st Class Renishia Richardson

An Apple Today

BY LT JACK HATHAWAY

The day's mission consisted of a simple set of canned SAR-1 presentations. Our objective was part task training, focusing on radar mechanics, stick and throttle skills, and part basic tasks involved in intercepts.

In our premission planning ORM, we significantly reduced the midair threat. There would be a single blue fighter with an instructor supervising, and the red air would be in section, but

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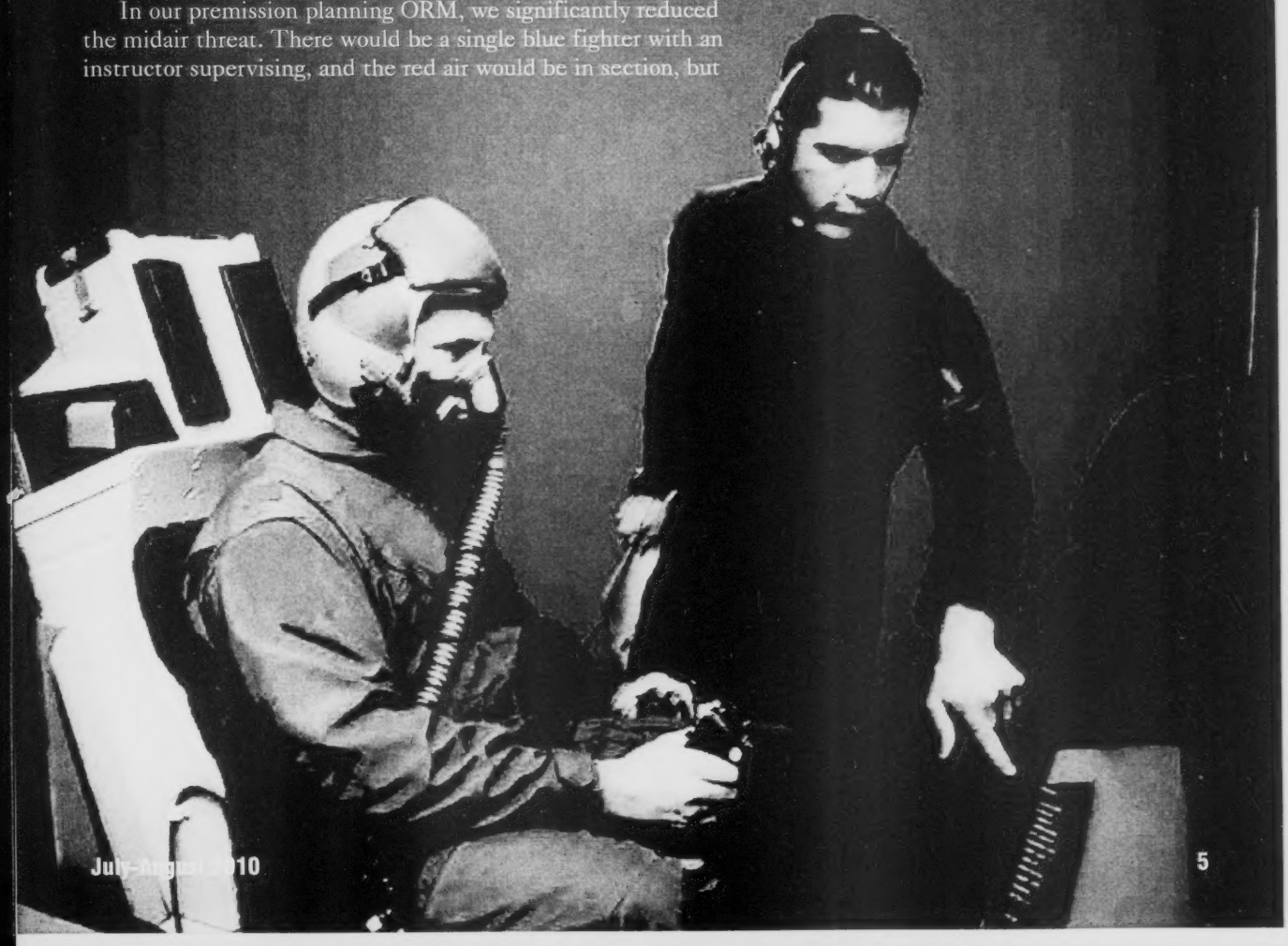

I MADE ASSUMPTIONS ABOUT THE RISK LEVEL OF THE MISSION THAT WERE WRONG.

handcuffed to airspeed, heading and block restrictions. The focus was radar mechanics, not merge effectiveness, so an additional layer of safety was provided by restricting the blue fighter from leaving his block inside of 10 miles, regardless of tallies. Any serious risk of midair would be mitigated as long as I adhered to these restrictions.I stuck to the training rules that day. I had learned my lesson from a previous unintentional close pass. If there was any doubt in training, I was going to take the safe path, knock it off, talk about it, and RTB if required. I was not going to put someone else in danger because of overconfidence, complacency or any dangerous frame of mind. What I didn't expect that day (and had only briefed once before in a pressure chamber) was that my mind might not be reliable.

On the first run, I descended through 10,000 feet with my throttles full forward, trying to do math in the cockpit to determine check-turn timing. My instructor asked if I was alright. I thought he asked in a casual tone. In reality, the instructor's tone was not casual at all, but insistent and loud, and I wasn't doing anything close to what I was supposed to be.

BASED ON THE OXYGEN METER ATTACHED to my finger, the oxygen level in my blood was diving through 70 percent. I had about the same mental capacity that I'd had four or five hours into the last squadron hail and farewell. Although I thought I wasn't seriously impaired, an impartial observer would see I was incapable of reasoning, unable to complete simple motor tasks, and unable to timely process information and react accordingly. I didn't notice the symptoms of hypoxia early enough. I was focused on the intercept and the timing, and I was frustrated that it was so hard to think. When I realized something was wrong, it was too late.

Did the instructor save my life that day? No, of course not. He simply hit freeze, turned the oxygen back on and reset the simulator, so I could do it again, and again. I did at least half a dozen runs in the simulator that morning, with the oxygen flow monitored by a qualified member of the medical team from NAS Lemoore. That first run affected my judgment so significantly that, had I really been in a jet, I'm sure I would not have recovered. Conducted in a safe, monitored environment though, the hypoxia training in a tactical scenario was very instructive. My squadron had all our pilots go through the simulator. We were managing risk in advance by learning what symptoms to expect, and how quickly the condition could overwhelm our ability to combat it.

Two months later during COMPTUEX, I was a newly-minted section lead, leading a capable level II pilot on a sunset red-air mission in the Southern California operating area. We briefed coordination and red air. Our role was to provide basic bandit presentations, so the fighters could focus on part-task training. The major ORM concerns were midair collisions and weather, which called for a low overcast to develop. The cuffs were on, and I was confident the measures in place would keep us safe. Did we talk about hypoxia, vertigo or any other physiological effect? No. Do we ever include that discussion in a brief?

I started noticing symptoms shortly after the fights-on call. I wasn't sure it was hypoxia, but I just didn't feel right. Maybe that instructor hadn't saved my life that day in the simulator, but he and that training probably did this day. I knocked it off, took a 90-degree turn away from the fighters to exit the problem, and initiated a rapid descent to below 10,000 feet. I didn't pull the green ring, because I wasn't completely sure I was hypoxic. I should have.

As I leveled off around 6,000 feet, I took off my mask and the symptoms got worse. I called the recovery-tanker pilot, a senior pilot with plenty of experience, to read through the book with me. I strived to sound calm and professional while I asked him for help, but I started to doubt my ability to make rational decisions. I had taken the mask on and off a dozen times. I tried to determine if the problem was bad ambient air (cabin altitude matching actual altitude

of 6,000 feet) or the air coming out of the OBOGS system, which felt stale and had weak flow. I initially detected the symptoms when the mask had been on for 30 minutes, but then felt much worse when I took it off after the descent. The uncertainty of the situation affected my ability to compartmentalize the developing panic and focus on procedures.

When my new wingman of opportunity and I started to read through the book, we ended on different pages. To him, my disagreement on the page number implied I still was coherent and recovering from the episode. I wondered how screwed-up I was if I couldn't even get that right. How I was supposed to fly an IMC approach to a night carrier landing if I couldn't even find the right page in the PCL?

By now I had left off the mask for long enough to determine the OBOGS flow was bad, and the cabin air was giving me the oxygen I needed. I again elected not to pull the green ring, and conserve the 10 minutes of emergency oxygen for the approach. The skipper came up on the rep frequency and concurred with our plan. He directed me to secure the OBOGS system and only put the mask back on — with the emergency oxygen — for the last 10 miles of the approach. When I did put it on, all doubt about the source of bad oxygen vanished as the system provided me a refreshing solid flow of cool air. The subsequent approach and trap were uneventful.

These two missions, one in the simulator and one in the jet, provided many lessons learned. What resonated most with me was the difficulty I had in compartmentalizing. The hypoxia symptoms I experienced in the simulator were considerably more developed than what I felt in the jet, but none of the panic was there.

The best thing I did that evening was ask for help when I wasn't sure I could handle it by myself. The worst thing I did was not to immediately pull the green ring. Like runway behind you or altitude above you, good oxygen sitting in a tank unused doesn't do any good. Pulling the ring early would have removed the uncertainty of a safe-oxygen source, and helped me focus on the recovery. I could have descended to below 10,000 feet, got settled and on autopilot, and then reset the green ring to preserve good oxygen for the approach.

I MADE ASSUMPTIONS about the risk level of the mission that were wrong. It was a simple canned AIC mission, and I thought we mitigated the risk of the pertinent threats, midairs and weather, by restricting the red air and building completely conservative ladders. I assumed the pilot at the controls would be reliable, and concluded the overall risk in this mission was close to zero. In reality, none of us are impervious to physiological risks. The reduced-oxygen training in a tactical simulator clearly demonstrated this situation, but didn't impact the way I briefed or evaluated risk.

Mitigating known risks using ORM and discussion of relevant factors in the brief is vital. From now on, though, I will also brief that no mission can ever be risk free. Hypoxia, vertigo and other physiological issues can arise, and it is often the unanticipated or unknown risks that may be the most dangerous.

LT HATHAWAY FLIES WITH VFA-14.

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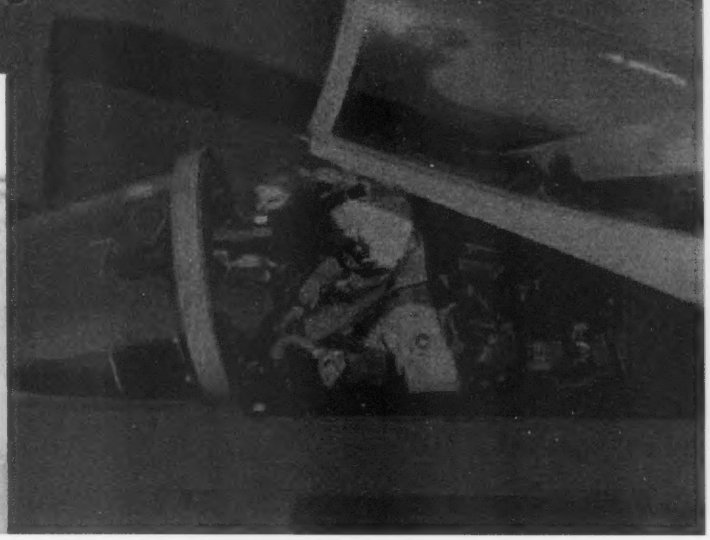
High Five with Mr. Hands



BY LT TRAVIS AMERINE

All FA-18 aircrew and mechs are familiar with the infamous "Mr. Hands." However, many of us take for granted the important role the big blue mitt plays in ensuring our safety around the aircraft. It took one unforgettable shocking moment to remind me how important that "high five" really is.

I was scheduled for my first, good-deal low level through the snow-covered mountains of western Japan. Because of weather and my lead's plane going down on deck, I had to flex to the prebriefed alternate mission of 1 v 0. I didn't mind this situation, considering I was flying a slicked-off Rhino.

I launched and remained in a thick overcast layer throughout my transit to our working area south of Japan. As I checked in, I was disappointed to discover the area was unworkable for weather. Shelving the slick jet Mach run, I pointed my nose to base and recovered a half-hour later.

As I pulled into the line, I was greeted by the

normal activity. I secured the engines and opened my canopy to egress from the cockpit. I immediately was stopped by my plane captain (PC), who told me to remain in the seat until they could bring Mr. Hands over to discharge the canopy.

Waiting for the equipment to arrive, I enjoyed a humorous conversation with our line chief. He told me several stories about maintainers and aircrew being shocked by a canopy that hadn't been discharged. His story is funny for the same reason "America's Funniest Home Videos" is funny. I pictured other pilots flying through the air as they were blown off the jet, but I didn't imagine the pain associated with it, nor did I believe it actually could happen.

I SAW A BRIGHT FLASH OF LIGHT AND FELT AN INCREDIBLY POWERFUL SHOCK FLOW UP MY BODY AND INTO MY CHEST.

After watching my PC ground Mr. Hands and discharge my canopy, as I had seen a hundred times before, I was cleared by the ground crew to egress the aircraft. As I pulled myself out of the cockpit and placed by left leg on the LEX (leading edge extension), I moved my right hand off the canopy rail and put it on the forward windscreen. Boom!

I saw a bright flash of light and felt an incredibly powerful shock flow up my body and into my chest. The air instantly was knocked out of me, and I was blown directly backwards into my ejection seat. As I lay sprawled out in my seat, with my legs hanging over the sides of the canopy rail, I hardly could believe what just had happened. My breath was slow to return and I must have sat there for several minutes, shocked and confused at the irony of the situation. The line chief was soon by my side, asking if I was OK. They had no doubt what had happened because they had heard what sounded like a loud firecracker as the canopy discharged into my body.

I GOT OUT OF THE AIRCRAFT by myself. My right arm was numb, and my chest felt like I had just taken a Mike Tyson punch to the upper torso. As I walked into maintenance control, I was given the details of what just had occurred, straight out of the FA-18 Super Hornet IETMS (individual electronic technical manuals). I was told that I had received an estimated 100,000 volt, static-electrical charge that had built up on the aircraft during my flight. Our pubs warn that this hazard can seriously injure or kill.

After an extensive investigation, our quality-assurance shop found all procedures had been completed in accordance with IETMS, and the grounding equipment was in good working order.

After several EKGs and other not-so-fun labs, I was cleared to fly two days later. I learned two important lessons. Even when actions are done according to standard procedures, as they were that day by my ground crew with Mr. Hands, an unloaded gun still should be treated as a loaded gun, and a discharged canopy still should be treated as a charged one. When it comes to the environment we operate in, nothing is guaranteed.

I always will remember this dose of wisdom the next time I stop for fuel on a good-deal cross-country and Mr. Hands is not present. I will egress the cockpit using the canopy rails versus pulling myself out by the windscreen. I will avoid touching the canopy at all costs. My seat caught me that day, but I easily could have found myself lying beside my aircraft on the ground with a broken arm or worse.

As for the second thing I learned, a ready room can never get enough material like this for a good laugh.

LT AMERINE FLIES WITH VFA-27.

U.S. Air force photo by staff sgt. Michael Keller

Just Another Six-Hour Mission

BY LT JASON HARDING

I launched in my Super Hornet as a wingman on an early morning tactical-reconnaissance mission from the deck of USS *Dwight D. Eisenhower* (CVN-69). We were in our final month of combat operations, supporting troops on the ground. Our flights into Afghanistan had become routine.

Our planned mission for the day included a one-and-a-half-hour transit from the carrier to our first tanker, followed by reconnaissance tasking using the shared reconnaissance pod (SHARP). Then, after another aerial refueling, we were to check in with a joint terminal air controller (JTAC) for the remainder of our on-station time. Lastly, we'd rendezvous with our final tanker and head back to the carrier.

After an uneventful transit from the carrier and hookup with my first tanker of the day, a KC-10, I proceeded to the precontact position—about 5 to 10 feet behind the basket. After I stabilized my FA-18F, I moved toward the basket, just as I had done every other time before. Something wasn't quite right, and a large sine wave had developed in the slacked hose. When the wave reached my probe, it sheared off the tip. I immediately cleared away and,

I always will remember that a divert is possible and make to sure that divert information is handy. Complete your ship-to-shore checklist.

realizing we now had no aerial-refueling capability and with our fuel running low, we decided to divert. My weapons-system officer (WSO) radioed to our lead, "Look's like we're going to Kandahar." With those words, I turned and put the airfield on the nose.

As we headed to Kandahar Air Field, we thought about landing on dry land, something I hadn't done in nearly four months. The airfield was only 60 miles to our east when the probe was damaged, so fuel was not a concern; we had enough to remain airborne another 45 minutes. We methodically went through our ship-to-shore checklist, which included a few short but important steps for configuring your aircraft for landing on terra firma. The most important step is the antiskid switch. For carrier operations, the antiskid switch is kept in the off position to provide maximum braking authority and ability to lock the tires. Shore based, the antiskid system is on, providing a much needed capability to prevent skidding, detect hydroplaning, and most importantly, prevent blown tires. This function has bitten aviators in the past when transitioning from carrier to shore-based operations or in an emergency divert situation, much like ours. On top of that, the risk of blowing a tire is greater, given that our aircraft tires were pressurized much higher for carrier operations.

After we landed, my WSO and I recounted every detail of the flight. We hadn't considered our aircraft gross weight for landing. After some number crunching, we realized we were less than 50,600 pounds, the NATOPS limit for field landings. Looking back, with more than 1,000 pounds of ordnance, the SHARP, and two external fuel tanks, we could have been close to exceeding the landing weight if we had had more fuel onboard. Aircraft gross weight is something you always want to consider, especially when you're carrying heavy ordnance or landing on a short runway.

Another lesson I learned was aircraft servicing. Because we were the only FA-18F the airfield had seen in sometime, civilian ground crews were unfamiliar with servicing our jet. As I stood there with a confused look on my face, looking at the refueling panel, I tried to remember how to refuel my aircraft. I remembered back to the cross-country, aircraft-serving training I had received many months ago. Sure enough, I messed something up because fuel began to spray from the fuel vents on the vertical stabilizers. After flipping a different switch, however, I managed to top off the jet.

THE FOLLOWING DAY we were met by our rescue detachment, a group of six motivated Sailors. They got right to work and, within only a few hours, managed to replace our in-flight refueling probe and ready the jet for our return to *Ike*.

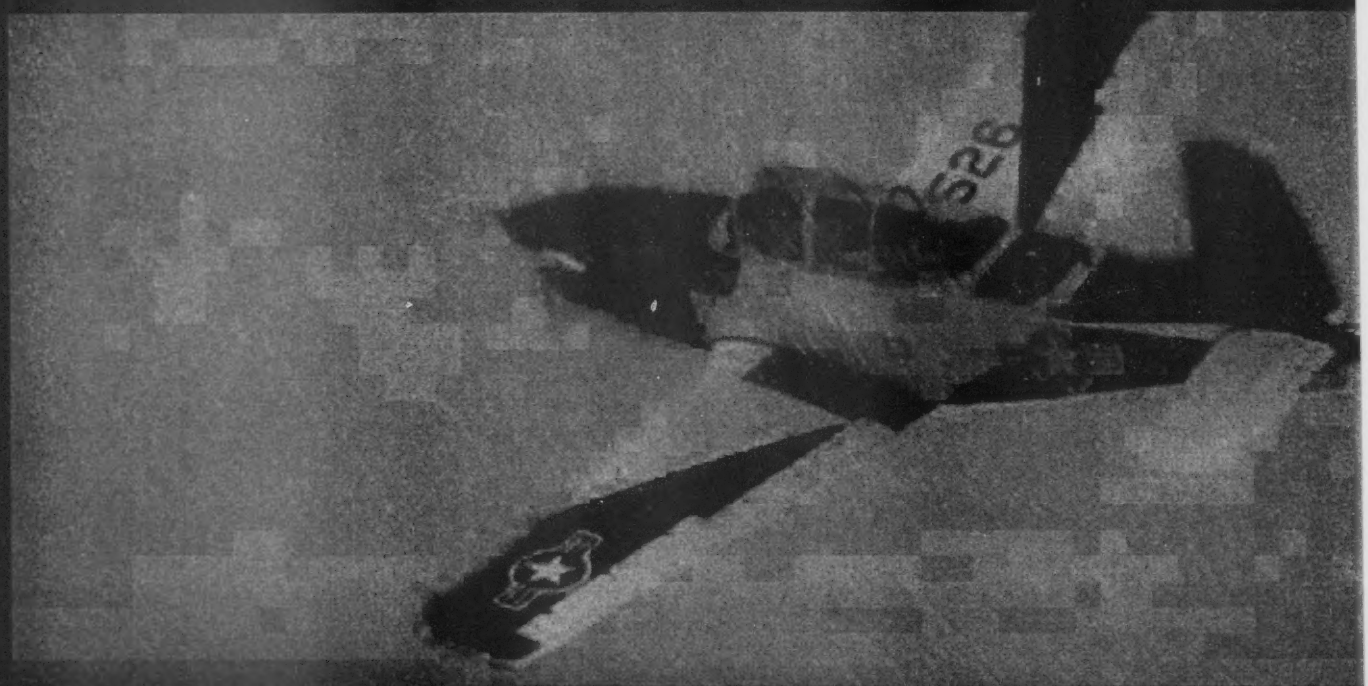
As I look back on my flight into Kandahar, I always will remember that a divert is possible and make to sure that divert information is handy. Complete your ship-to-shore checklist, and remember the most important step of all: the antiskid switch. Also, consider things like heavy gross weight, runway length, and carrier-pressurized tires for landing.

Finally, once you're on deck, be familiar with how to properly service your aircraft. Save yourself the embarrassment of relearning this procedure while a fuel hose is attached to your jet.

LT HARDING FLIES WITH VFA-103.

A Hole for Every Sucker

BY LT BILL WEBB



As a newly qualified primary-flight instructor in the T-34C, I allowed aircraft experience and the need to prove myself get me into a bad scenario—a scenario that easily could have been avoided. If you've trained in the Florida panhandle, you understand how quickly weather can deteriorate, making it difficult to train. For our flight, training area one was covered by clouds, making it unworkable. Area two had multiple cloud layers and holes, but still was workable for contact flights.

While briefing the student, I learned that his performance was below average and he had had issues with air sickness. However, I didn't think much of it—just a little more work needed from me. I did a final weather check, talked to a few other instructor pilots, and left the line shack to see a sucker hole lit with golden rays of sunshine. I elected to go flying.

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While strapped-in with our engine running during the pretaxi checklist, the naval aircraft collision-warning system 991 (NACWS) would not power up. However, the NACWS screen, which displays DME for the TACAN, worked fine. I signaled the lineman, who radioed a troubleshooter. I also called back to the FDO and told him of our problem. After talking it over with him, we decided I could go flying without it working; I was ready to keep pushing. As the troubleshooter arrived, the NACWS magically started to work as advertised, and I got the standard look that asked, "What's the problem?"

After departing NAS Whiting runway 14 at North Field, I saw the weather quickly change, and my rays of sunshine turned into rain. We worked our way into area two and remained VMC. Once the working area became unworkable for our purposes, I promptly radioed back a PIREP of the current weather conditions. I picked up an instrument approach, and got vectors for TACAN runway 14. We soon found ourselves getting bumped around in total IMC with rain. So far, these conditions were normal flying, and any winged aviator wouldn't think twice about it.

Here's where my experience worked against me. In my last squadron, I purposely flew a P-3C into the tail of hurricane Gustav for live damage assessment of New Orleans, the dust storms in Iraq, and the notorious thunderstorms off El Salvador. Surely, I could handle any weather here in Florida. However, this scenario was different. The student in the front cockpit started to get airsick. He had no instrument time and couldn't aid in tasks as simple as keeping the wings level.

After getting on the final approach course in the basic approach configuration at the MDA, the NACWS failed. This time, the display screen went blank. This loss is huge, because the display is where DME for the TACAN is displayed. I was at 540 feet, still in the clouds, and on course. But, I only had a rough idea of my distance to the field, because I had the GPS backing up the approach. I still had to execute a missed approach.

"Take a breath, keep aviating, no big deal," I thought, "I'll just shoot the PAR at South Field."

I picked up another clearance and started to get vectors for the PAR. While vectored, I was told the PAR wouldn't be operational until 0900, another 20 minutes. ATC instructed us to hold over the Santa Rosa TACAN, but without a DME display, I used the GPS.

Those who fly the T34 know the GPS has its quirks, such as going to a blank screen on an approach, and occasionally scrolling through its pages for no reason. Just like clockwork, after about five minutes in holding, the scrolling began. I had the student fly straight-and-level so I could troubleshoot. With his lack of training and already airsick, we found ourselves at about 60 degrees angle-of-bank, which ended his time at the controls. Just like a bad simulator ride, I had no DME, the GPS was unusable, my student was losing his breakfast, and the only navigation aids working were my TACAN and VOR needles.

After telling approach of my degraded navigation systems, I was given multiple long-legged vectors until I finally was cleared for the PAR. After landing, we did the 10-minute taxi from South Field to North Field. For my student, it just seemed like 40 to 50 minutes of flying in clouds and getting sick. But for me, I was at the limits of my experience in a T-34C with an inexperienced student.

I LEARNED SEVERAL THINGS from this flight. Yes, I have a lot of experience flying the P-3C with multiple navigation systems. I've also flown with many experienced crew members, who were trained as a team to fly in adverse weather. The P-3C was a better instrument flying platform. However, I'm now dealing with T-34C students who have little to no experience. They have the ability to take away from your situational awareness, rather than augment it.

It's easy to confuse platform experience with your current situation. In the first two months of instructing, I got to fly multiple approaches in the local area, building platform-specific experience under normal conditions, which definitely helped me out later.

The equipment-failure issue—works fine one minute then fails the next—is one that everybody has experienced. On a P-3, I could have the in-flight technician go back and do the "magic reseat slash equipment drop test" and possibly make it work again. In the T-34C, once airborne, with the exception of cycling power, you are stuck with what you have, so understanding all future outcomes of lost equipment is very important.

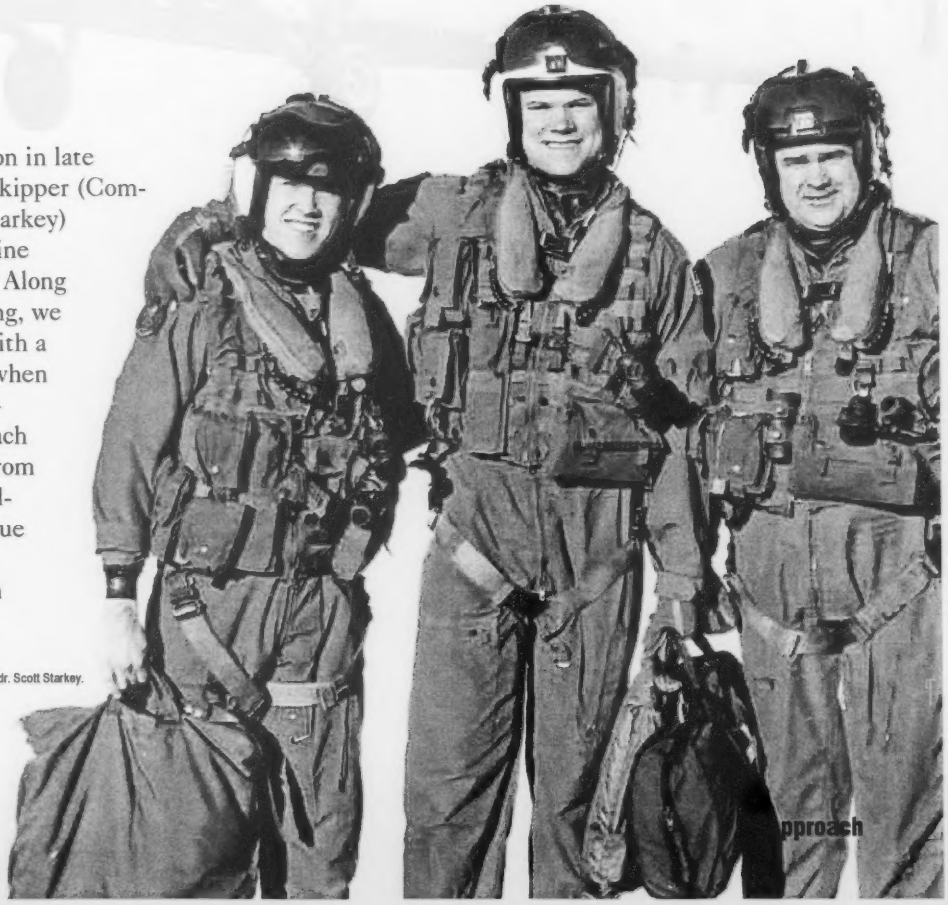
I was prepared to fly a straight, contact flight with no emphasis on instruments. I didn't think about South Field not starting PAR operations until 0900, because I figured if I had to shoot an approach, I could shoot the TACAN at home with no problem. If we had lost our radios, we would have been in a dire situation considering the lack of navigation aids, in IMC, and with other aircraft in the blind.

LT WEBB FLIES WITH VT-2.

Rescue at the Swamp

BY LTJG DEREK HAYNES

On a cold afternoon in late December, my skipper (Commander Scott Starkey) and I had a routine proficiency hop. Along with AWS2 Christopher Wissing, we were wrapping up the flight with a couple practice autorotations when we received notice of an ongoing emergency. Norfolk approach control requested assistance from us and another helicopter, Redwolf 201, for a search-and-rescue (SAR) near Lake Drummond in the Great Dismal Swamp in



Left to right: Ltjg. Derek Haynes, AW2 Christopher Wissing, Cdr. Scott Starkey.

Assuming the downed crew had not survived, a sick feeling grew in the pit of my stomach.

southeast Virginia. We were excited to put our years of training to use in a real-life SAR, which would be my first. Approach control said a light, civil aircraft had crashed into trees about 25 miles south of our position. Both aircraft bustered via radar vectors from approach. Upon arrival, we learned that an E2-C from VAW 124 had assumed on-scene-commander duties (OSC), and another civil aircraft was circling above the crash site, marking the scene.

The E-2C deconflicted altitudes and assigned GPS locations for the search. Both helicopters initiated search patterns and within minutes, I spotted the downed aircraft. It was inverted, nose down, and nested in 80-foot-tall trees, less than half a mile from the lake.

Nobody said a word, but we thought the same thing: "There was no way anyone could have survived the crash."

Assuming the downed crew had not survived, a sick feeling grew in the pit of my stomach. I marked-on-top the crash and recorded the GPS location. Almost immediately, our aircrewman saw two survivors, about 20 yards from the crash. With that call, our spirits lifted, and I relayed to the OSC that survivors had been spotted.

DESPITE THE EXCITEMENT, we still had a problem. Conducting a rescue requires two aircrewmen, and we only had one. Our aircraft procedures require one crew chief to operate the hoist, and one crewman to ride down the hoist. We asked Redwolf 201 if they had a crew chief, but they didn't. Commander Starkey then asked AWS2 Wissing if he would perform crew-chief duties if the Redwolf crew was willing and comfortable combining crews. AWS2 Wissing confidently responded, "Yes sir!" Both aircraft landed in a nearby field and Redwolf sent over AWR3 Chad Knaack to take part in the rescue.

Arriving back at the crash site, Cdr. Starkey positioned our aircraft into the wind and hovered 15 feet over the tree tops. AWS2 Wissing prepared the rescue aircrewman for hoisting, while providing advisory calls to the cockpit. I updated the OSC and kept crunching our bingo numbers.

We maintained a steady hover for more than 25 minutes. The process of hoisting our rescuer through the tree-top canopy with the rescue strop was challenging and slow. After setting foot on ground, our guy quickly assessed the survivor's conditions, and prepped the first one to go up. Upon giving the signal, the rescuer and survivor were hoisted and pulled into the cabin. Both aircrewmen made a first-aid assessment and then strapped the survivor into a troop seat with a warm blanket and water. AWR3 Knaack was lowered to recover the second survivor.

The aircraft approached our 900-pound, bingo-fuel state, when we would have to depart. It was late in the day and the temperature rapidly was dropping. With both survivors soaking wet, hypothermia was a possibility. Fortunately, AWR3 Knaack quickly worked to get himself and the last survivor ready for hoisting.

We completed the recovery of the second survivor before our bingo, and we departed the scene. The HSC-9 operations officer, LCdr. Stephen Merritt, had coordinated a patient drop-off at a Norfolk hospital. We followed Redwolf to the hospital and landed on their helo pad. The survivors were offloaded and placed on stretchers. We thanked Redwolf and the VAW-124 crew for their help, departed the hospital, and made our way home.

The story ended in success because of teamwork, training and standardization. The combination of FAA calling Felker Army Air Field to find airborne helicopters, VAW-124 acting as OSC, and HSC-9 operations providing coordination demonstrated excellent teamwork. The ability of HSC-9 and HSC-84 crews to conduct a combined search on short notice and execute a flawless recovery showed superb standardization of our aircrewman training.

Once on deck in front of our hangar, Cdr. Starkey and I debriefed the day's events. We were met by the rest of the squadron and congratulated on a job well done. All the hard work we'd done over the years had paid.

LTJG HAYNES FLIES WITH HSC-9.

Let's Take Trent Lott to Trent Lott

BY LCDR GARY KRUPSKY

I got a call the night before the flight. It went like this:
Ops: "Krup, need you for a mission tomorrow."
Me: "When?"
Ops: "0700 show."
Me: "What needs to be done?"
Ops: "Nothing, other pilot dropped out last minute, flight plan is done, everything's done, just show up for the brief."
Me: "Alright, see you in the morning."

I showed up and did the basic C-40A planning for a CONUS mission: Notams, weather and flight plan. The flight advisory said we were to pick up a lift from KADW (Andrews AFB) and bring them to KPQL (Trent Lott International). I'd never been there before, but Trent Lott is an international airport, 6,500-foot runway, so no worries. We confirmed the airfield knew we were coming, they had gas, and off we went.

I'm not the type of person who watches the news much, but if I'd have turned on the TV that day or read a newspaper, I would have known it was the anniversary of hurricane Katrina. Every politician from DC and parts unknown were making their pilgrimage to New Orleans for the anniversary. When we arrived at Andrews, I only then found out we were to pick up Senator Trent Lott and his entourage to transport them to KPQL. To my disappointment, Trent Lott never showed up, but we did board his entourage and about a dozen flag officers.

The flight was uneventful until the approach brief. As we descended through 12,000 feet, something did not feel right. Looking at the approach plate, I realized the airfield looked familiar. I had been to Trent Lott International before, as a T-34C IP during a VNAV, and we had flown an out-and-in. I did't remember much about the field except the runway had just been repaved with fresh asphalt.

I asked the pilot flying to level off and discontinue the approach, while I looked up some stuff. The IFR supp listed the runway-bearing strength for runway 17/35 as T60, or 60,000 pounds gross weight for our type landing gear. If you're not familiar, the C-40A is a nonstandard Boeing 737-700, and its zero fuel weight is around 90,000 pounds. We were at 110,000 pounds for landing. I think we were slightly overweight for the runway's capacity. I still couldn't believe we would be scheduled into a field that couldn't accommodate our aircraft. Using the Sat phone, I called the airfield manager.

Me: "Hey, this is Lt. Krupsky with JV670."
Airfield manager: "Good morning, we are expecting you. We have the limos and transportation for the DVs standing by."
Me: "Have you ever had a 737 land there?"
Airfield manager: "Oh, hell no!"

I had to slink back and ask the admiral's aide where the score of three stars and below would rather go, because Trent Lott was not an option. I still was oblivious that the upcoming traffic around Keesler was for the Katrina anniversary. I offered the passengers Mobile International or Keesler AFB, which were equidistant from Trent Lott. They chose Keesler AFB.

After landing at Keesler and RTB, we discussed how the holes almost lined up.

- Poor mission scheduling by NALO. You would think our scheduling authority would thoroughly screen airfields to make sure of basic suitability, but occasionally this gets overlooked.
- Poor oversight by the squadron. Because Ops assured me "everything's done," I took this to mean everything that I normally would do was done.
- Poor preflight planning by me. I allowed myself to become complacent and not rely on the preflight planning I had learned to use with unfamiliar fields.

I guess someone thought it would be neat to fly Trent Lott into the airfield that bears his name. The passengers actually wanted to go to Keesler but figured there was a highly classified reason we were

going to Trent Lott. This flight should never have left for that airfield and no one, including myself, ever asked the question about airfield suitability. In the best case, we would have sunk the gear in the asphalt taxiing clear of the runway. Worst case? I really don't want to think about it.

We have so many preflight tools available to us that sometimes we only reserve them for the OCONUS missions. When I briefed the incident, everyone patted me on the back and said, "Great catch!" I wish I had caught it on preflight. I guess my luck bucket is a little lighter. I learned a valuable lesson about thorough preflight planning, good habit patterns, and how when it comes to airfields, the word "international" doesn't guarantee you @#$%.

LCDR KRUPSKY FLIES WITH VR-58.

Photo by MCS2 Alan Gragg.

Is Your Trim Working?

BY LCDR DAVID PHILLIPS

If you had to choose a Hawkeye airborne-emergency procedure with memory items, then I know the one to pick: runaway longitudinal trim. Step one: "T" Button – Press. This procedure has no other memory items. Everything else is deferred. Naturally, there are complications; there always are.

The aircraft was on the road at NAS Atlanta to fly several of our reservists who live in the area. It had flown the day before with no issues. The only difference this day was an entirely new crew. The old aircraft commander thoroughly briefed the new aircraft commander and signed over an A-sheet. Everything else was normal by squadron standards. The flight was briefed in accordance with NATOPS. The weather on our Dash 1 was a stable, nonconvective, and solid 1,000-foot overcast—great weather for a bunch of reservists trying to get their flight-hour minimums.

We filed our flight plan for the local ground-controlled-approach (GCA) box pattern, then manned up, started engines, taxied, and took off. The excitement didn't begin until we penetrated the goo.

The flight remained in solid instrument-meteorological conditions (IMC) for the duration of the flight, up to the point where we broke out about 300 feet above approach minimums on final.

After takeoff, I felt excessive forward pressure on the yoke and tried to trim out the force. The trim switch felt soft on the downward click, leading me to believe the switch might have an electrical short. The left and right movement of the switch affects rudder trim, and it worked fine. That's when I had the bright idea to ask the copilot to use his trim switch, which initially appeared to work. In reality, it was the longitudinal-trim actuator that was only working sporadically.

As airspeed increased to a lightning-fast 200 knots, normal GCA-pattern speed for us slow movers, the pressure was reduced and only slightly abnormal. Even so, I pressed the "T" button per our procedures and tried to use the standby trim system. Much to our chagrin, it also was inoperative.

We continued in the GCA pattern, plus or minus a few hundred feet, as I struggled with constant yoke pressure. The aircrew in the

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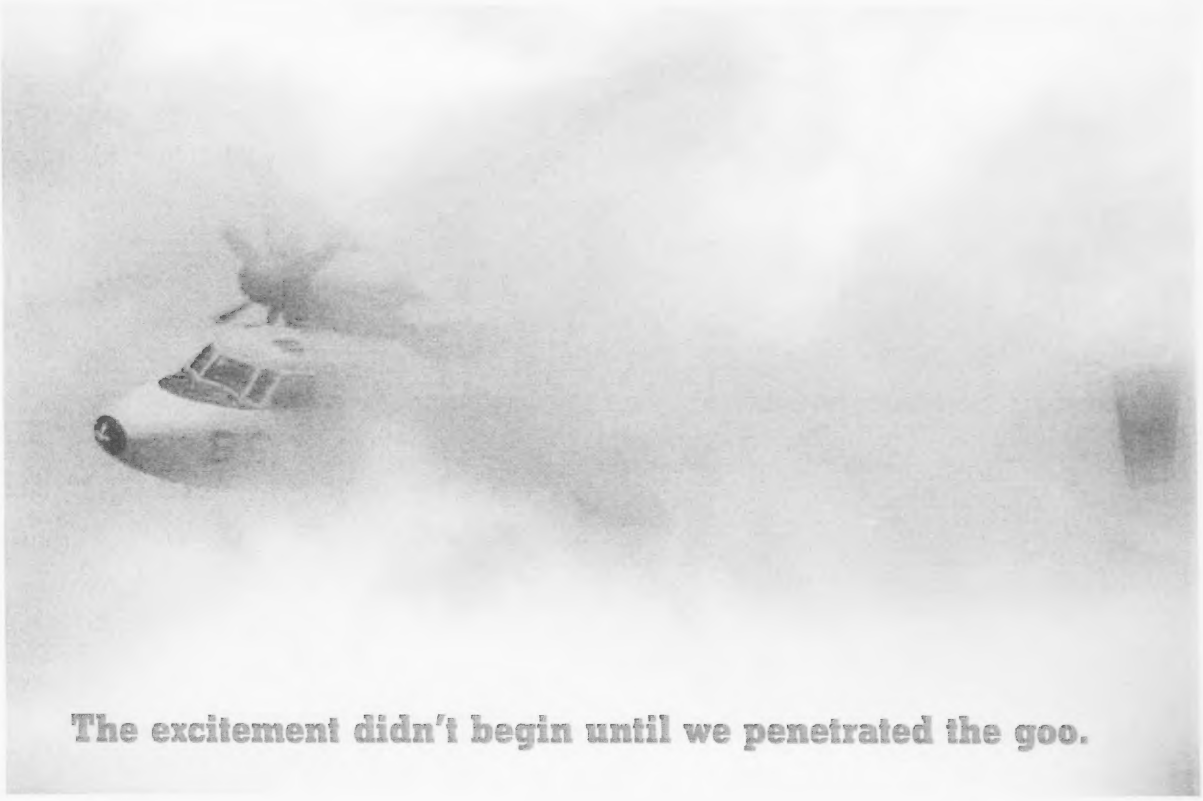

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back pulled out the NATOPS and began reviewing procedures with the copilot, while I did the one task that I seem best at: aviating.

From their review, we decided to use our third system for relief of longitudinal-trim pressures. Called "manual pitch feel," it is a reliable but complex mechanical system best described as the shifting of the airplane's center of gravity. This system doesn't actually do that, but the analogy works. When the speed manually is set at a speed different than what we actually are flying, then the yoke can become either spongy and unresponsive, or hyper reactive and prone to pilot-induced isolations. The first condition is relatively benign and easy to deal with; the latter can be unpleasantly exciting. Fortunately we had the former.

On the base leg, I began to configure for landing and enjoyed the feel of about 30 pounds of forward pull on the yoke. The copilot manually slewed the pitch-feel system to a lower airspeed than I was flying. This action substantially reduced the building forward pressure of the yoke. Upon my request, he ran the speed as low as it would go. We were 30 to 40 knots above our landing speed, but it was nice to have the relief. Because airspeed could not be reduced any farther, I kept it up in anticipation of heavy forward pressure on the yoke before landing.

WE BROKE OUT OF THE OVERCAST as advertised and continued our approach. Nearing short final, I slowed the aircraft from 150 to 120 knots, which resulted in about 40 pounds of pull on the yoke. We landed without further incident. With great relief, I released the yoke without tragic consequence, only to watch it travel full forward and remain there during the rollout.

The maintainers said the longitudinal-trim actuator had failed. Furthermore, we confirmed what we had suspected in flight: The primary and standby trim systems are separate wires that connect to the same actuator—not as redundant of a system as one would like.

Know your systems. Even a bunch of crusty old reservists remembered enough about the flight-control system to anticipate the aircraft's next desired state of equilibrium: full nose down.

LCDR PHILLIPS FLIES WITH VAW-77.

Seagulls Ruined Our Day

BY LCDR CRAIG BILYEU

After 14 years of experience in fixed-wing aircraft, I wondered if an actual engine failure just after rotation would resemble the scenario I've practiced hundreds of times in the simulator. I also wondered what a bunch of seagulls would smell like after being blended by the margarita machine of a turbine engine.

I found out on a bright, clear day in Rota, Spain. Our six-person C-40 crew looked forward to our five-hour flight to Senegal, Africa. The mission called for an overnight stay in Dakar, which would have been the first visit in Africa for most of our crew.

We taxied to the duty runway while unaware that a huge flock of seagulls (not the 80's British band) had gathered about 6,000 feet down the departure end. We immediately were cleared for takeoff and on our way. Just as we reached V1 speed and rotated, all three of us in the cockpit saw about 60 seagulls directly in our path. I hoped they would stay on the ground, and we would climb over the dense pack. However, they quickly climbed directly into our path.

The flying pilot in the left seat made his best Top Gun impression with our Boeing 737. He nearly cleared the group, but at least a dozen birds zoomed by our windscreen and more importantly, into our engines. Before our cockpit crew could finish yelling the standard obscenity in unison, many birds were ingested down our starboard engine. We heard loud bangs and saw fluctuations in our engine instruments.

AFTER WE CLEANED UP OUR LANGUAGE, we quickly followed the procedures we've been trained to, in and out of the simulator. The left seat pilot made sure he applied max power to the good engine and accelerated above V2, our best single-engine climb speed. I raised the gear, declared an emergency, and called out airspeeds as we prepared for engine-shutdown procedures. I looked back at our crew chief. She was communicating with our backend crew and had the abnormal checklist in her lap ready to follow.

Even though the engine continued to sputter with loud noises, we continued to accelerate and climb. At

... at least a dozen birds zoomed by our windscreen and more importantly, into our engines.

1,000 feet, we started our turn downwind and reduced power on the damaged engine to idle. This action significantly reduced the fluctuations and noises, and for the first time, I felt the engine may not shut down on its own.

During the two minutes on downwind, our crew chief called out the checklist, and we reviewed the actions we'd have to take if the engine quit during the landing phase. When we turned to final the fluctuations almost had ceased, so we left the engine running until we were on deck.

After we reached our line and shut down the aircraft, we bet on how badly the engine was damaged. To our surprise, it was minimal. Besides the normal blood and guts, just two turbine blades had been bent, and there were abrasions of the inside of the nacelle. Within six days, we had the parts delivered from home guard, and we were ready for further tasking.

Although we didn't complete our mission to Africa, we were fortunate not to have suffered a dual-engine failure, especially with the Hudson River not available. I also learned to trust my training. I had heard our simulators do a great job of duplicating the characteristics of an engine failure—I can now confirm it. The sounds and visuals of our bird strike closely matched what I had seen many times in the simulator.

I also took away from this incident a new confidence in our engines. We ingested at least two Spanish seagulls (double the size of the American version), and although the engine initially bogged down, within a few minutes both engine indications were back in the green.

I did answer the blended-seagull question. Imagine a pot of seafood chowder left out in the sun for a month to stew: putrid. Maybe we should incorporate that into our training?

LCDR BILYEU FLIES WITH VR-58.

To Press or Not to Press

BY LT JASON LORIZ

We were in our third month of deployment. The operational tempo in PACOM was high, and the missions were seeming second nature. One early morning mission was to sanitize a body of water for a transiting carrier group. Our secondary tasking was to conduct an inchop flight for another squadron's crew, who were new to the Pacific theater. The mission called for a 10-hour, burner—standard profile.

Considering the situation, we still had one slight problem: Our P-3 had an onboard configuration that gave it a more aft center of gravity than normal. This prevented us from "bagging out the tanks" while carrying our standard sonobuoy load. Our calculated fuel load only would provide about eight and a half hours of flight time when coupled with the standard ordnance load. We also needed a hefty fuel reserve requirement for operating out of Okinawa, Japan.

We called a flight-station huddle. My 2P, who also was a qualified patrol-plane commander (PPC), both flight engineers (FEs) and I gathered around the galley table—one of the nice luxuries of the P-3—and discussed fuel planning. We would have included the 3P, but he was busy filing the flight plan, getting a weather brief and collecting the box lunches. After a healthy exchange of ideas and verification with the fuel charts, we concluded that a 10-hour flight was achievable. Weather permitting, we would have to fly a max-endurance profile, inclusive of loitering an engine, which is the procedural shutdown of an engine to save fuel. We had a plan and continued our preflight. We were airborne two hours later.

An hour and a half into the flight, we arrived on-station to find a broken cloud layer at 1,500 feet—not quite what we were hoping for. We descended and conducted our mission at 1,000 feet. Upon reaching a gross weight with an acceptable two engine rate of climb, I loitered the No. 1 engine, and flew max endurance to further save fuel and meet our flight-profile requirements.

Three hours into the flight, the FE in the seat asked, "Did you see that?"

The 2P and I looked at each other and shook our heads no. The FE thought he saw a possible caution light flash on the horizontal-lights-indicator panel. The crew did a lights check and scanned the flight-station instruments and gauges but didn't see anything. After a few minutes and a couple of possible sightings, we finally saw a dim flicker of the No. 3 engine chips light with no secondary indications (which would require an emergency shutdown of that engine).

We reviewed NATOPS. The severity of the light was minimal because of the following: the low intensity of the light, no noted secondaries, the length between the flickering, and the belief that the light probably was caused by small particles (fuzz) in the engine. I did not restart the loitered engine because we already were stretching to make the on-station time, and the caution light appeared to be insignificant. We were all on the same page to restart the engine if there was a steady chips light. We further investigated by moving the No. 3 power lever back and forth and making slight turns and pitches of the aircraft. No additional indications were observed.

Although we didn't specifically discuss it during

our troubleshooting, we felt the pressure to meet the assigned on-station time. We would have failed if we were to abort for a caution light when NATOPS allows you to continue the mission. We decided to press. I could feel the P-3 gods patting me on my back for our textbook crew-resource management (CRM) and operational-risk management (ORM), or so I thought.

Here's how we train for emergencies during loiter operations. Etched into our brains as a young 3P through qualified PPC is that we restart a loitered engine whenever there is an emergency. When to restart an engine depends on the nature of the existing emergency, but we still do a restart. We also are taught the criteria for abort may be affected by the importance of the mission and the severity of the malfunction. The terms "real-world missions" or "when saving lives" are often used when discussing scenarios that deal with accepting additional risks. These two areas would later highlight that our tools for mitigating risk were in error.

THREE AND A HALF HOURS LATER, we were reaching our off-station time, and more importantly, our bingo fuel. It was time to restart our loitered engine. As the aircraft climbed past 4,000 feet, I called for the FE to restart the engine. All of a sudden, we heard a loud "pop" and saw a dark red NTS INOP light, a hazard light indicating a malfunction with the propeller's negative-torque system (NTS). We reacted to the malfunction according to NATOPS and secured the engine. We then completed our climb and aborted our mission for a return to base. To make matters worse, the flickering chips light came back to haunt us. With one engine secured because of an emergency, another with a flickering chips light and 45 minutes still left in our transit, I was ready for someone from the simulator consol to freeze the trainer, yell "finex," and debrief us on our training event. Unfortunately, this was real world.

To get ahead of the plane, we conducted all required briefs from NATOPS and discussed our plan of action if secondaries developed in the No. 3 engine. About 35 minutes from base, the tactical-coordinator officer (TACCO) told the flight-station crew that fumes were present in the tube. My 2P and I looked at each other, shook our heads and smiled as if asking, "Is this really happening?"

We alerted the rest of the crew of the fumes and called for the fire bill, which is an all-hands systematic search for a fire of unknown origin.

My 2P contacted Naha ATCC once we entered the Japanese ADIZ. He declared an emergency as we continued to buster toward Kadena AB. We located and secured the source of the fumes, a high-frequency-antenna coupler. Okinawa Control cleared us for the approach and a three-engine landing: NATOPS check complete.

We often preach the importance of training like we fight and fighting like we train. After this event, our squadron senior leadership met with all the aviators. They addressed perceived pressures that influence aircrews to accept increased risk because of high-visibility missions.

Though my aircrew believed we were doing the right thing by keeping a loitered engine shut down while another had a malfunction, we should have asked ourselves, "Is this how we've trained? Is our forward-leaning decision worth the risk we were incurring as an aircrew?" At the time, we thought yes, but after much discussion within the squadron and some good old hangar flying, we developed a better perspective on when the cost outweighs the benefits. To press or not to press? The answer requires NATOPS knowledge, experience and a sound understanding of the situation.

LT LORIZ FLIES WITH VP-5.

Navy photo by MCS3 Walter M. Wayman.

Helo Crews Meet the Cats, Props, and the Jets, Not to Mention the JBDs

BY LT KENT MCLAUGHLIN

For the first time in history, 13 helicopters were flying from two squadrons are onboard the aircraft carrier. More personnel are working on spot 2, increasing mission effectiveness, but also hazards.

Carrier life is changing. During CVW-9's work-ups and WestPac 2009 aboard USS *John C. Stennis* (CVN 74), HSC-8 and HSM-71 learned a lot about coordinating multiple-helicopter operations while jets launched and recovered. Flight ops became more complex with the use of helicopter spot 2. This spot enabled helo crews to preflight and startup while fixed-wing aircraft launched from cats 1, 3, and 4; it also cleared the landing area for recovery. Our increased use of spot 2 identified several safety issues and produced numerous lessons learned that can help future air wings as they transition to the HSC(CVW)and HSM model.

One of the major changes in carrier life is the addition of a helicopter maritime strike (HSM) squadron, which adds 11 helicopters to the carrier-strike group, five of which are based on the carrier. As a result, more than four helos often fly at the same time. They require more space, landing spots, and personnel to be on deck, between and during fixed-wing launch and recovery cycles. The increased use of spot 2 is a method the CVW-9 and CVN 74 team used to generate additional helicopter sorties with minimal impact on fixed-wing operations.

The largest obstacle was the lack of experience of helicopter flight-deck crews using spot 2. This issue was apparent when a Sailor came out on the port catwalk on the way to spot 2, forcing an FA-18 to wave off, which created a dangerous situation for that individual and for the Hornet flight crew. Also, helo maintainers and pilots were not accustomed to spending a significant amount of time on the flight deck during fixed-wing flight ops.

We also identified more hazards on the transit to spot 2 versus the traditional spots on the waist. A pilot with HSC-8 described the situation, "The first time I was on spot 2, we had to wait to hot pump and crew swap, while they launched Hornets off cat 1 and a COD off cat 3. Because the helo safe line and cat 1 foul line overlap, we had to wait for clearance from the yellowshirts to enter our own rotor arc." Building the situational awareness of flight crews was a major concern.

Ship flight-deck crews also had to adjust to the greater number of helicopters on deck, and the additional landing spots required to launch them. In one evolution, a helo was incorrectly spotted between two FA-18s on spot 2. The helicopter was placed less than two feet outside the wheel boxes, but crossed over the foul line when the rotors were spread. This relatively minor mistake was enough to delay flight ops until the helo could be moved, compressing an already tight cycle. As a result, squadron maintenance personnel were included in future aircraft moves to spot 2.

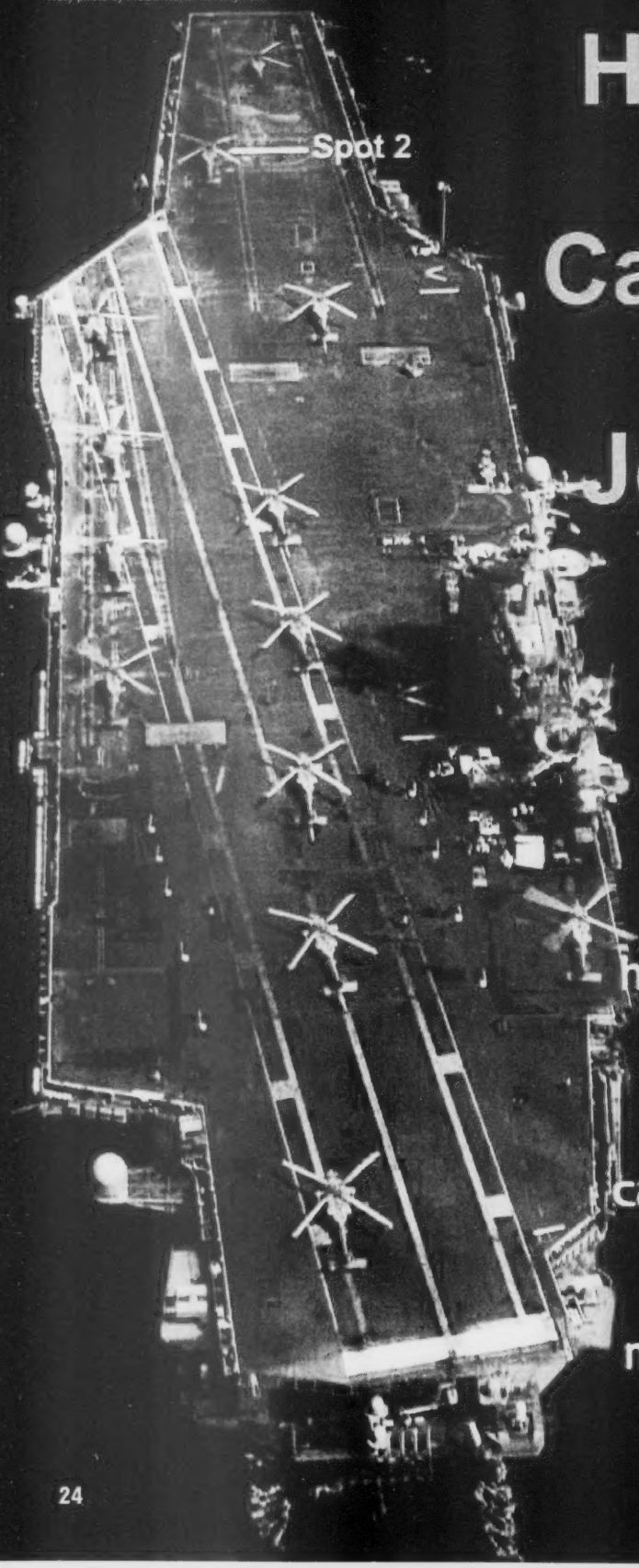
HSC-8, HSM-71, and the ship's air department held several joint standardization meetings to mitigate the hazards created by spot 2's increased usage. In-depth ORM helped the squadrons institute standard procedures and routes to make the safest transit to the bow and spot 2. Personnel were directed to walk in front of the six-pack, past the crotch, around JBD 1, then around the foul line. This routing allowed crews and troubleshooters to maintain situational awareness on the deck, and provided a well-lit route during night operations, past most of the hazards of the busy flight deck.

Hazard reduction required more than just a standardized route. Training was designed to teach flight crews and maintainers more about the deck-markings and hand signals given by flight-deck personnel. A solid crew brief made the transit to the helo much more predictable and safer.

The HSC-8 pilot described their plan to mitigate risks during the long transit to spot 2: "We knew we'd have a long transit to our helo, and during the ORM portion of the brief, we always included our route to the bird. This definitely set us up to be safe on the flight deck, and keep an eye on the yellowshirt's signals." The in-depth briefs instructed the junior flight-crew members, and reminded the more experienced personnel of the dangers of the flight deck.

Squadron maintainers also had to implement new procedures to mirigate the risks presented by operating from spot 2. "The addition of a blue T on the cranials of those who were in training on the flight deck identified who to look out for and pay special attention to," said AEC Michael Tuck, the HSC-8 flight-deck coordinator (FDC).


Navy photo by MCSSA Rachel N. Hatch.



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Navy photo by MCSSA Rachel N. Hatch.

Navy photo by MCS3 Class Frankie J. Colbry

This blue T identifier allowed flight-deck leaders to quickly build situational awareness (SA), and make time-critical-ORM decisions. AEC Tuck said, "I had to assess the risks every time I sent people down to their shops to get tools or parts." The FDC's SA was critically important because so many people were in different places on the flight deck, and not always within view of each other. "The whole flight deck was changing, and we continually had to remind people of the increased dangers of adding more spinning rotors to the flight deck," said AEC Tuck.

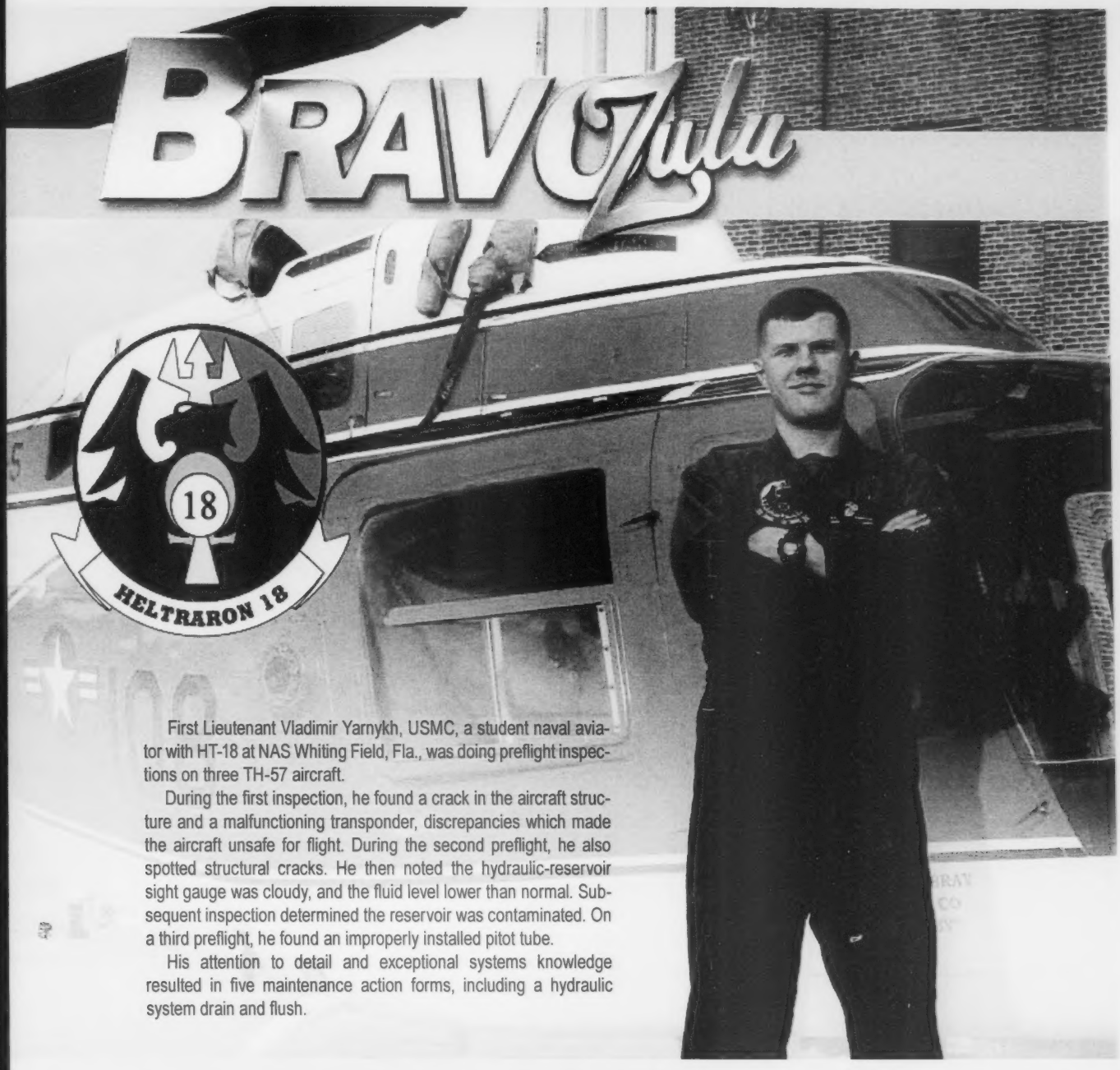
The CVW-9 and CVN 74 team mitigated any serous issues whenever a new hazard was identified. Communication between aviation and ship personnel allowed outstanding cooperation on the flight deck. Everyday ORM allowed the squadrons to work together and integrate into the first HSC- and HSM-capable carrier air wing, while keeping the flight deck as safe and efficient as possible for CVW-9 and USS *John C. Stennis*.

LT MCLAUGHLIN FLIES WITH HSC-8.

CVN 74's transition from 6 helo spots to 9 helo spots (spots 2-8 are precision spots)

Navy photo by MCS2 Elliott Fabrizio

BRAVO Zulu



First Lieutenant Vladimir Yarnykh, USMC, a student naval aviator with HT-18 at NAS Whiting Field, Fla., was doing preflight inspections on three TH-57 aircraft.

During the first inspection, he found a crack in the aircraft structure and a malfunctioning transponder, discrepancies which made the aircraft unsafe for flight. During the second preflight, he also spotted structural cracks. He then noted the hydraulic-reservoir sight gauge was cloudy, and the fluid level lower than normal. Subsequent inspection determined the reservoir was contaminated. On a third preflight, he found an improperly installed pitot tube.

His attention to detail and exceptional systems knowledge resulted in five maintenance action forms, including a hydraulic system drain and flush.

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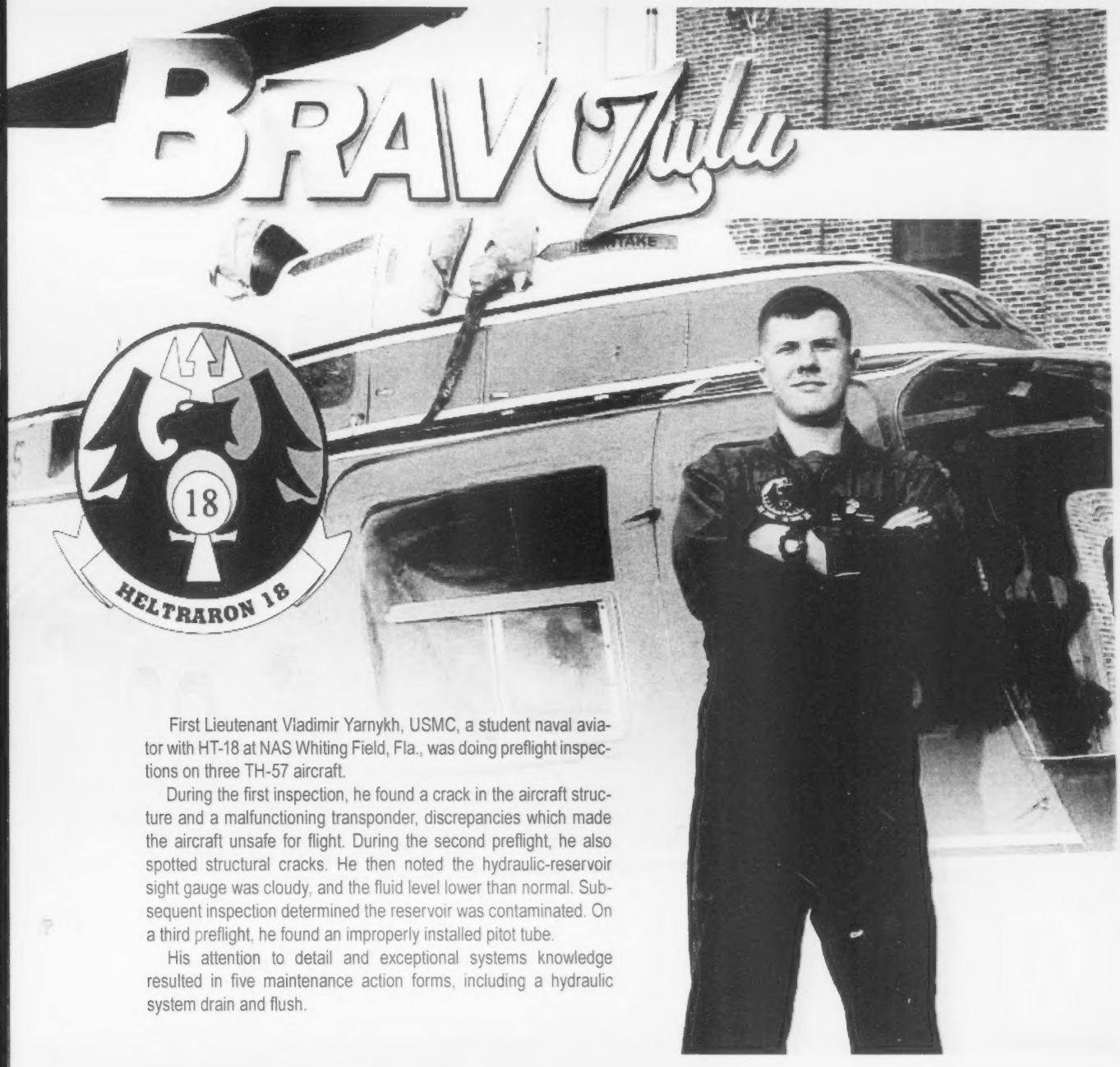

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Don't Worry, It's a Drill...

BY LTJG JEFFREY LAIRD

I was flying an MH-60S six miles from USNS Rainier *(T-AOE-6) when my crew got a man-overboard call from the tower. We just had finished a cross-deck vertrep and were conducting instrument training in a scattered layer of clouds at 4,000 feet. The call went out as we waited for a green deck to recover.*

About 30 minutes later, our crew rescued a distressed civilian mariner. He had jumped off our ship into the Indian Ocean with only an anti-exposure suit for survival gear and no land within 300 miles. We were fortunate to end this unexpected SAR with a save, considering the fact that, for the first 20 minutes, we thought our ship was conducting an elaborate, unannounced safety drill.

Let me share another lesson about the importance of effective communication and use of CRM.

Our misconception about the "safety drill" was because we weren't clearly and concisely communicating with tower. Tower's initial radio call calmly announced, "Sideflare 71, we think there is a man overboard, and this ship is coming about."

Surprised by the call, the HAC and I stared at each other in disbelief for a few seconds. Initially, we thought no one jumps off a ship in the middle of the ocean, so this must be another one of our captain's unannounced ship drills. When our captain checked onboard halfway through deployment, he had made it clear to our OinC that he liked to conduct unannounced safety drills with the ship, involving the air detachment when appropriate.

As we descended and turned toward the ship, we received another call from tower telling us, "There is a life ring in the water that we would like you to check out."

Instead of getting clarification from tower that this was not a drill, we made a common and potentially deadly mistake: We assumed.

Operating under the assumption this was a man-overboard drill, we went through the motions associated with practice SAR scenarios to take advantage of the training opportunity. My HAC simulated the automatic-approach checklist, while I set a bingo. Our crew chief simulated rigging the cabin for rescue, and our second crewman simulated donning his rescue-swimmer gear.

We reached the ship as it was coming about and quickly located the life ring off the ship's port side. I maneuvered into a hover over the life ring and told tower, with the expectation they would announce the conclusion of the drill.

Tower responded with, "That's great that you've found the life ring; now we are looking for possibly one or two people."

We departed the hover and commenced a ladder search at 250 feet that crept in the opposite direction of the ship's original course. For the second time, we briefly discussed the plausibility of an actual SAR. Unfortunately, we fed off our own individual disbeliefs and concluded, as a group, the ship must have thrown overboard one of its practice dummies.

The reality of the situation finally dawned on our crew when one of our detachment pilots started directing us from the bridge to investigate for possible survivor sightings. Our second crewman began to change into his rescue-swimmer gear, and we re-evaluated our previous plan of action. Fortunately, we were taking the training seriously, and our pattern, procedures, and approach to the SAR required little modification. Five minutes later, our crew chief spotted the survivor floating in the water, and we made the rescue.

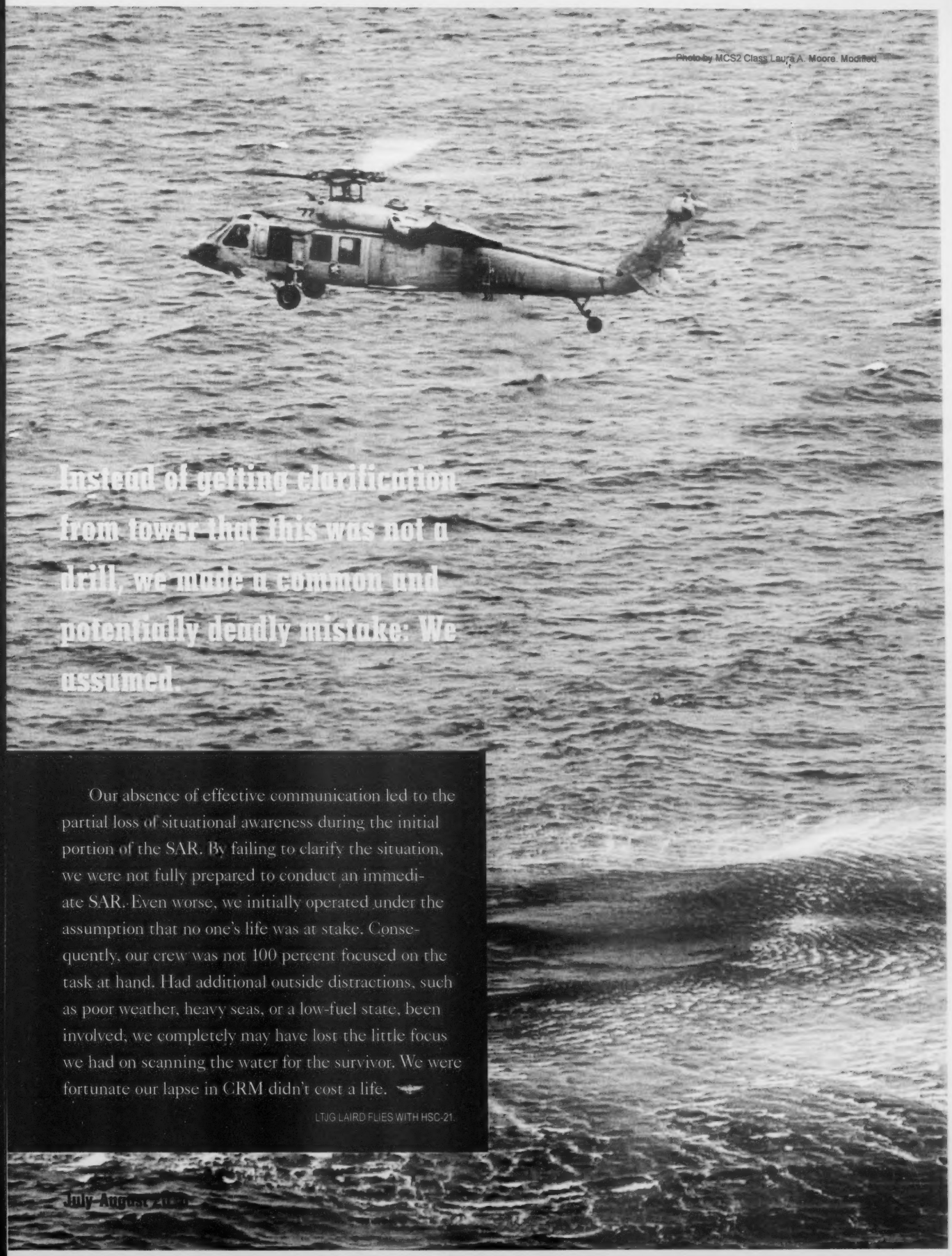
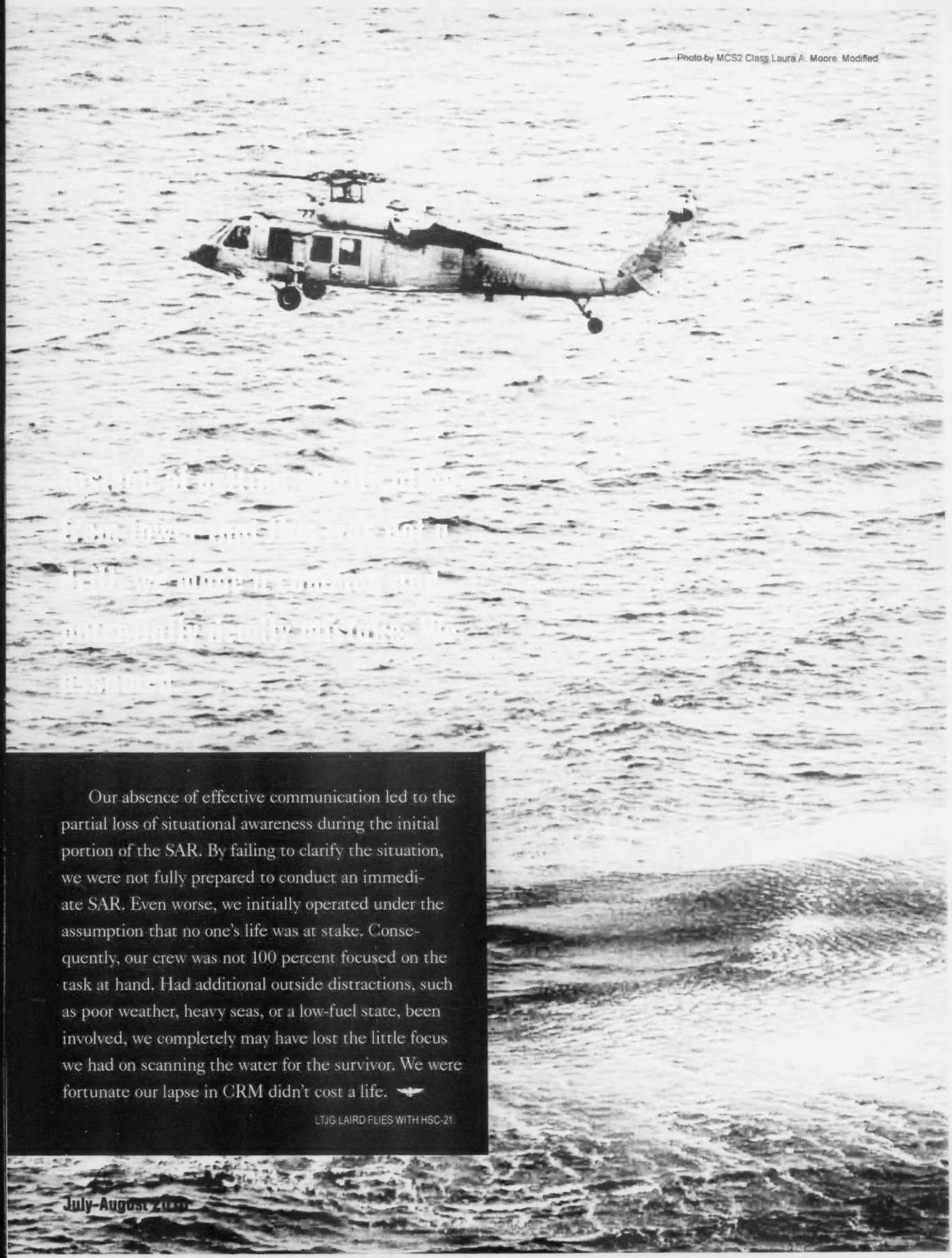


Photo by MCS2 Class Laura A. Moore. Modified.

Instead of getting clarification from lower that this was not a drill, we made a common and potentially deadly mistake: We assumed.

Our absence of effective communication led to the partial loss of situational awareness during the initial portion of the SAR. By failing to clarify the situation, we were not fully prepared to conduct an immediate SAR. Even worse, we initially operated under the assumption that no one's life was at stake. Consequently, our crew was not 100 percent focused on the task at hand. Had additional outside distractions, such as poor weather, heavy seas, or a low-fuel state, been involved, we completely may have lost the little focus we had on scanning the water for the survivor. We were fortunate our lapse in CRM didn't cost a life.

LTJG LAIRD FLIES WITH HSC-21.



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LTJG LAIRD FLIES WITH HSC-21.

Another Standard Article

BY LT JOE HEYNE

Is it possible to make a story about ground procedures seem dramatic and exciting? I assure you, for the pilots and ground crew involved in our incident, drama and excitement abounded. For a Hornet JO, the level 3 syllabus is the biggest obstruction standing between spending long nights at work, and once complete, long nights doing much better things. On this day, I was scheduled for my level 3 pre-check flight. After weeks of gloomy weather, today finally was looking better, we had mins at least, and I definitely was ready to knock out this event.

After startup, my UFCD and MPCD wouldn't power-on, and the MPCD would have to be replaced. We did not have any slide time because of a tight range schedule; this swap had to happen fast. I tried to contact base and other flight members to let them know the situation, but quickly realized my skills at using the

I noted an incredibly confused look on the face of my PC,

Photo by PH3 Kristopher Wilson. Modified.

backup radio on the DDI were nonexistent.

I shut down the left engine, and two ATs climbed up on the LEX to replace the display. Despite my best efforts to contort my body in the cockpit to allow them room to work, they had difficultly taking out the old MPCD. I was five minutes from takeoff.

I thought, "If I want to get this hop done, I need to make something happen now."

In the brief I had mentioned using one of the red-air jets as a turning spare. I briefed these procedures using the common word, "standard." In my mind, the spare was to start up as usual, but if I had jet troubles I would get out of my jet and jump into his. He was parked next to me, and I could see by his distant stare and head lying against the canopy, that he was complete with final checks and just waiting to taxi.

I WAS QUITE FRUSTRATED with my inability to use the backup radio, and the thought I was about to loose this event. I motioned to the pilot next to me, in the turning spare, that I was going to jump into his jet. Without signaling the PC or allowing him time to chock and chain my jet, I got out of my jet with the right engine running, and the two ATs alone working in the cockpit. I noted an incredibly confused look on the face of my PC, as I quickly walked past him toward the turning spare.

The pilot of the turning spare shut down his left engine, and we swapped jets. As I taxied out of the line, I radioed base only to find that my range time had been extended for another half hour, which turned out not to matter, as we soon learned the range completely was socked-in with weather. I let my hinge wingman suck LAU for 20 minutes in the goo on the way back home to help alleviate all my frustration. After landing, I was greeted in maintenance control by a handful of unhappy and confused maintainers.

By jumping out of a turning jet without it being chained down, and only secured with one chalk, I had put ground personnel and the ATs in serious danger. The ATs were working in the cockpit very close to the throttle of the turning engine. Had they inadvertently bumped the throttle, the jet could have taken off completely uncontrolled across the flight line.

as I quickly walked past him toward the turning spare.

Looking back, the entire situation would have been avoided if I had learned, and then briefed the correct procedures for a turning spare. I should have then informed maintenance on my plan as well. In the debrief, we realized that everyone's interpretation of a "standard turning spare" was different, as none of us actually had executed this on shore, which unlike when we have a turning spare on the ship, involved a crew swap. When I decided to switch jets, I should have signaled to the PC to shut down my jet. I could have then walked over to the spare, without leaving my jet turning, and unoccupied and executed a proper hot seat with the turning spare.

Had this scenario unfolded differently, my lack of procedural knowledge coupled with frustration over my inability to use the radio, and a drive to get the hop out could have had dire consequences. I had put the maintainers and jet at risk, and had set a bad example to everyone out on the flight line.

To cut down our briefs to a tactical length, we easily can make a much-too-frequent use of the word standard when it comes to admin. For procedures not in an SOP and not practiced often, caution should be used when briefing things as standard, as it can have many different interpretations.

LT HEYNE FLIES WITH VFA-147.

New Ways to Break a Prowler

BY LCDR THOMAS LOVETT

On a beautiful fall afternoon off the coast of Virginia, VAQ-140 was about to begin COMPTUEX with Air Wing 7 on USS *Dwight D. Eisenhower* (CVN-69). I was to arrive at the squadron in December, but it was decided that joining the squadron for COMPTUEX in November would give me a month to learn the new ICAP-III before we left on cruise in early January.

After our first trap and cat shot, we were given instruction to depart and reenter because of pattern congestion. We departed and arced back around to the initial. After calling the initial, I asked the boss if we were hook up for two. I got no response from tower. We went into the break, dirtied up, and extended the hook. At the bow, I asked again about the hook, again no response. Because our last pass wasn't beautiful, I felt paddles was looking to get my nugget pilot some extra traps.

There I was, CQ with a new pilot, new squadron, new air wing and new boat. During the brief on the beach, before we headed to the boat, I had the pilot go through his normal procedures on the flight deck. When we got to the procedures in the wires, I told him to add hydraulic gauges to his checks, to make sure we would have brakes, and to make sure the lights were off. I wanted him to build a habit pattern for the night trap.

As the hook snatched the wire for our second trap, I looked over to cross-check the pilot. I did a double take at the gauges when I saw both combined hydraulics at 1,000, down from 3,000, and going down. Seeing that, my mind raced through all the items we would lose with a combined-system failure. A total of 10 items rely on the system, and "No brakes" is significant. Whoa, I'm about 20 feet from going into the water with no brakes. I thought of the 2003 mishap where the Prowler taxied off the deck edge at the waist.

Before the pilot had a chance to say "Lost brakes," I made the call over tower, "502 Prowler in the wires, lost brakes."

The pilot later told me that he didn't even know we had lost brakes, but when I made the call, he tried the brakes and they were gone. After the lost-brakes call, I had the pilot execute the bold face and get the lights on. I signaled to the yellowshirt that we wanted to be chocked. The deck crew chocked us, hooked us to a tow bar, and got us out of the landing area.

We found out later the landing gear down, actuator-hydraulic line had ruptured. Our best guess is it broke sometime during the break for the second pass. The airframers told us the line goes from 0 to 1,500 psi when we lower the gear. Had we done two touch-and-goes, we probably would have bled out the system before we got to the last trap. I think an angel sat on my shoulder that day, because we would not have been able to raise the gear and we were below dirty bingo.

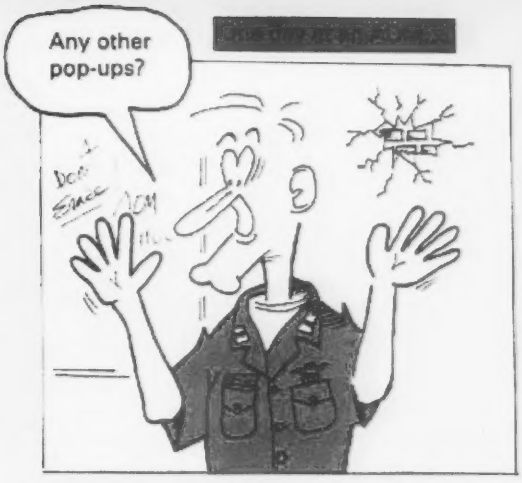
This jet could have ended up in the water. As the venerable Prowler enters her sundown stages, she will break in ways we have and haven't seen before. Knowing the systems and operating in a standardized way will allow the aircrew and this bird to continue its job until the replacement is complete. Know your procedures cold, they will save your life; and learn from other peoples mistakes because you won't live long enough to make them all yourself.

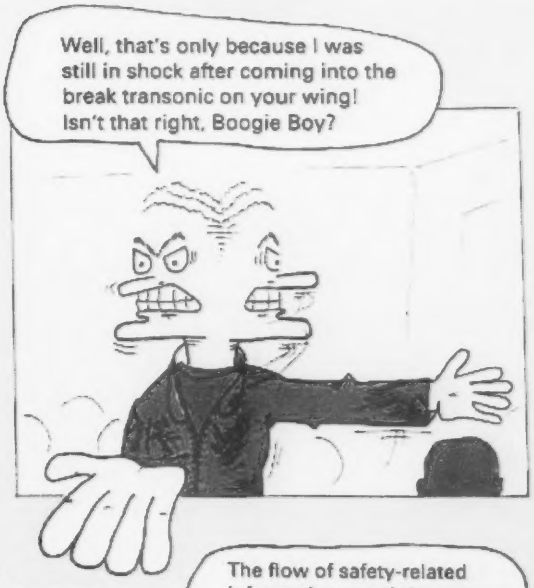
LCDR LOVETT FLIES WITH VAQ-140.

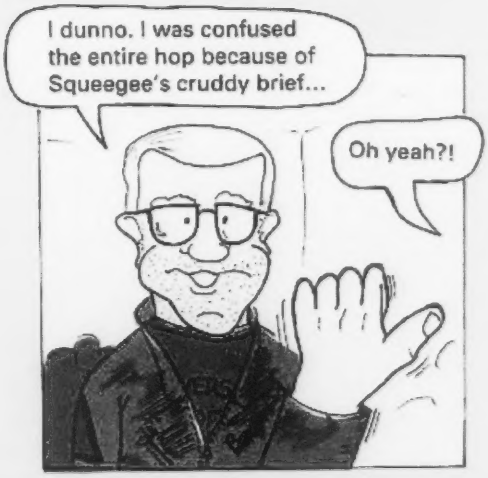
BROWNSHOES IN ACTION COMIX

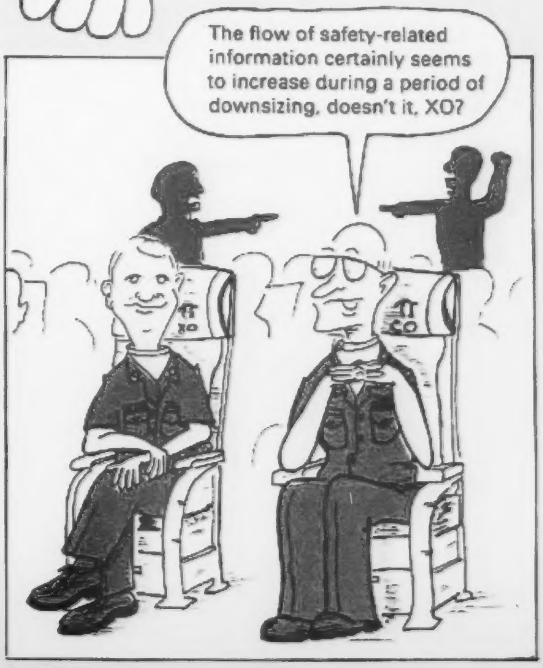
"The kind real aviators like"

By LCdr. Ward Carroll, VF-101









Waving off a bad approach,
double-checking the pubs
or calling it quits in deteriorating weather
are not signs of weakness–
they are signs of professionals
making smart decisions.